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LETTER AND THE U S EPA REGION III COMMENTS ON THE REMEDIAL INVESTIGATION REPORT UNEXPLODED ORDNANCE 11 (UXO 11) THE VALLEY NSWC INDIAN HEAD MD
06/18/2015
U S EPA REGION III PHILADELPHIA PA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
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Date: June 18, 2015

Joseph Rail
NAVFAC Washington
Washington Navy Yard, Building 212
1314 Harwood Street, SE
Washington Navy Yard, DC 20374-5018

Re: Indian Head Naval Surface Warfare Center, Indian Head, MD
UXO 11 – The Valley
*Remedial Investigation Report*

Dear Mr. Rail:

The U.S. Environmental Protection Agency (EPA) has reviewed the U.S. Navy's (Navy's) March 2015 *Remedial Investigation Report* for UXO 11, the Valley, located at the Indian Head Naval Surface Warfare Center NPL site. Based upon that review, EPA offers the following comments:

1. General Comment – Please be aware that the RSL value for the dinitrotoluene mixture (2,4 & 2,6 DNT) when found together, is lower than the RSL value for each individually. Did the risk screening properly evaluate the mixture, both in soil and in groundwater?

2. General Comment - The EPA BTAG generally concurs with the conclusions of the SLERA and BERA Problem Formulation Refinement despite the fact that EPA CERCLA ERA Guidance and Region 3 procedures were not strictly met. The primary procedural discrepancy is screening COPCs strictly based on central tendency exposure estimates.

3. General Comment - Potential impacts to fish, including early life stages of fish, should be included in the SERA. It is noted that fish-based bioaccumulation exposures for wildlife were evaluated.

4. General Comment - The BERA work plan should be presented to EPA BTAG for review before BERA fieldwork is initiated. It is unclear if a Feasibility Study or a BERA, or perhaps both, are being recommended. Please provide more information on the approach and potential schedule/sequence.

5. Section 2.7.2- Site Specific Geology- Well "ISUXO11MW08" is misidentified as "ISUX11MW08". Additionally the nomenclature for soil borings is inconsistent, which may be a remnant of inconsistent labeling between the 2010 SI and the 2013 RI. "ISUXO11DP31" is misidentified as "ISUXODP1131".

6. Figure 2.1 – The site map doesn't adequately identify site features that are called out or discussed in the report text. Building numbers identified in the text should be labeled on the figure. The area(s) where jet propulsion research was conducted should be identified if known.

7. Figure 2.2 – All data points along the cross sections appear to have been projected to the line. However, only those wells used for line A-A' have been specifically identified as being projections. Additionally data points appear to have been inconsistently projected to cross section lines. For instance point ISUXO11MW05 has been projected onto line A-A' while point ISUXO11DP51 which is closer to the line has not been used on A-A'. Additionally some data points seem to be excessively distant from cross section lines (ISUXO11DP45 on line C-C' is approximately 150 feet from this line). This may in part be resolved by shifting where cross section lines are shown on this figure.

   The readability of this figure is poor. White outlined text should be used consistently on the figure so as not to be lost in the dark image.

8. Figure 2.3 and 2.5 – The lithology shown on these cross sections do not correlate with each other where they cross.

9. Section 3.1.1 – DGM – The inclusion of the QC seeds when talking about the number of anomalies to investigate based upon statistical assessment is slightly confusing. It should be clearer that the statistical assessment required 369 randomly selected anomalies to be investigated, and that the 29 QC seed items were not part of the statistical analysis.

10. Section 3.2.1 – Surface Soil Sampling – What was the soil visually inspected for? Was the first six inches inspected and sampled prior to continuing the boring, and inspecting the next 6 inches? If so the visual inspection from six inches to 1 foot should be mentioned in the subsurface soil section (for example, after surface soil sampling the boring was continued, and visual inspection of the soil was conducted to the 1 foot bgs mark).

11. Section 3.2.2 – Subsurface Soil Sampling – HAS should be defined at its first use as hollow stem auger, and should be included in the list of acronyms.

12. Section 3.2.3 – Monitoring Well Installation – Well development procedures are unclear. For the wells where development was completed, were they considered to have been developed after 3 volumes regardless of water quality readings, or was the development driven by water quality readings? The last paragraph in this

section appears to make both of these true. The water quality parameters should be listed here, in addition to stability requirements.

13. Section 3.2.4 – Groundwater Sampling – Were depth to water levels recorded synoptically?

14. Table 3-1 – Deviations column – For sampling in 2010, 30 surface soil samples should be listed, rather than 30 subsurface soil samples.

15. Table 3-2 – Location coordinates that were moved after surveying should be noted as approximate.

16. Table 3-3 – Well ISUXO11MW01 is listed as having a 10.5 foot screen. This is inconsistent with what is described in Section 3.2.3.

17. Section 4.2.3 – Nature and Extent of Contamination – Results discussions need further grammatical review. Discussion on whether an analyte is or is not a HHRA or SERA COPC should be discussed in sections 6 and 7 respectively. Section 4 should be limited to a discussion of detections and exceedances of screening values (RSLs, etc.).

18. Section 4.2.3 - Nature and Extent of Contamination – The draft RI should present a spatial estimate of contamination with contamination contours, if possible, in addition to comparisons to background concentrations and presenting mean/central tendency statistics.

19. Section 4.2.3.1 – Surface Soil – The last sentence needs to be corrected to: "SERA COPCs were identified for metals, but there are no COPCs for explosives."

20. Section 4.2.3.1 – Subsurface Soil – It is inappropriate to combine a discussion of surface and subsurface soil results in this section. This should only discuss analytical results from the subsurface soil samples collected. The combining of the surface and subsurface soil results should be discussed in Section 6.

21. Table 4-3 – This table should be moved to Section 6 or 7, or eliminated. The information is more relevant to sections 6 and 7, and are presented in Tables 6-2 and 7-32.

22. Table 4-4 – The SERA Values for aluminum and iron are listed as pH ranges. The actual screening value should be listed here and a foot note used to show the applicability of the screening value is dependent upon soil pH.

23. Section 5.4 – Fate and Transport of Detected Constituents in Groundwater and Surface Water – The statement that it is not practical to discuss every metal COPC in the scope of the RI report is inappropriate. There are a total of five

metals listed as COPCs in this section and two of them are discussed. The additional discussion of the remaining three metals should not be considered to be impractical.

24. Section 6 Fate and Transport – The draft RI should address migration of soil and sediment to surface water bodies, including specific emphasis on the drainage channel.

25. Section 6.1.3, Chemicals of Potential Concern – In the 3rd bullet under the subheading 'Combined Surface and Subsurface Soil,' cobalt was identified as a COPC for particulate emissions from soil to air; however, according to Table K-2.6, the maximum concentration used for screening was less than the screening value. Please remove cobalt from this bullet.

26. Section 6.4.1.3, Approach for Lead – The approach described is an appropriate analysis of the lead contamination as averaged across the site. However, the surface soil concentration of lead at ISUXO11-DP07 was 1,600 mg/kg (and a subsurface concentration of 1,220 mg/kg), which is 160 times greater than the average concentration used in both the IEUBK and adult lead model risk calculations. This area may represent a lead hotspot and the concentration at ISUXO11-DP07 was identified as a potential outlier when analyzed by the outlier tests in ProUCL. In addition, when the lead concentration of 1,600 mg/kg is analyzed in the IEUBK software, the geometric mean is 12.6 and the percent above 10 µg/dl is almost 70%. Recommend further consideration of lead as a COC at this specific location.

27. Section 6.4.2.6, Future Industrial Worker – The 5$^{th}$ bullet states that one detected concentration of cobalt exceeded the background level; however, MW1 and MW2 had cobalt concentrations greater than the background value (from MW8). Please revise or clarify.

28. Section 6.5.3, Page 6-19, Uncertainty Associated With Toxicity Assessment – Second paragraph, 3rd sentence – Please delete this sentence. This statement is inaccurate. Most studies do not support the existence of a threshold level, and the statistical power of a study necessary to support a threshold level is not realistically capable. The observed threshold in a cancer bioassay is an artifact of the study design and not a true biological threshold.

29. Section 6.5.3, Page 6-20, Uncertainty Associated With Toxicity Assessment – The last sentence of 4th paragraph in this section includes the statement, "however, these values should be interpreted cautiously because USEPA has not approved these toxicity factors." Please delete this phrase. USEPA supports provisional values, as evidence by their availability on the Agency website.

30. Figure 6-1
    - Please revise table to include Current Industrial Worker as a potentially complete exposure pathway. Ingestion of and dermal exposure to surface water by the Current Industrial Worker was characterized as a complete exposure pathway – Table K-7.1 includes risk from surface water.
    - Please revise table to include Future Construction Worker as a potentially complete exposure pathway. Dermal exposure to groundwater by the future construction worker was characterized as a complete exposure pathway – Table K-7.14 includes risk from dermal exposure to groundwater via trench excavation.

31. Section 7.2.1 Environmental Setting – The draft RI should adequately describe the aquatic habitats at UXO 11 that support the aquatic assessment endpoints in the SLERA. This should include aquatic habitats associated with the drainage swale where sediment and surface water samples were provided, as well as the general area in and along the Potomac River.

32. Section 9.1.1 – Site Characterization – The second sentence states that the drainage ditch swale show the subsurface geological conditions of the site in the northwest to southeast direction. This is not correct. The lithology in this direction is interpreted from well borings along this line. Additionally, the statement "with clay and silt predominantly found beneath sand bearing layers" needs to be edited or removed as this can be interpreted to imply that silt and clay is for the most part only found beneath sand bearing layers, or that for the most part all sand bearing layers are underlain by silt and clay. Neither of these statements appear to be true based upon cross sections.

    Descriptions of the geology by the Potomac River do not match well. The description of the east-west geology uses sand to describe this area, while the description of the same area in the north-south direction only mentions silt and clay. The sand, silt, and clay in this area (and all areas of the site) need to be presented in a consistent way.

33. Section 9.1.2 – Nature and Extent of Contamination – The lack of any VOC/SVOC sampling, despite the presence of jet propulsion research having been conducted at the site, would preclude making the statement that the site's media have been adequately characterized. If there is sound evidence to have omitted VOC/SVOC sampling it needs to be presented somewhere in the RI.

34. Section 9.1.2.2 – Chemical – Surface Soil – The last sentence should omit the phrase "may be associated". The explosive NG is associated with the past site activities, and is not naturally occurring.

35. Section 9.1.2.2 – Chemical – Surface Soil – Metals - The conclusions presented on the metals contamination at the site need to be revised. The draft RI states

that the source of metals contamination at the site could be from the presence of munitions energetic compounds and munitions casings, then makes assertion that "the mass present from these sources would be small" (based upon bang box studies presented in the USACE document cited). This statement needs clarification. Does this pertain to releases from individual items? If so, the magnitude of the individual release is meaningless without providing the number of individual releases (i.e. a large number of small releases could produce a substantial mass of metals released in total).

Additionally, the USACE finding only applies to the release of metals from the "detonation of ordinance" which would not be the sole source of metals contamination present at UXO 11. The MEC investigation showed that metallic debris is widespread across the site through land clearing and the DGM survey. This metallic debris, along with the potential of over a hundred years of exposure, could be a potential source of metals contamination throughout the site. Essentially, the metals contamination could have occurred from releases from munitions casings and other metallic debris being present at the site over a long period of time, and not from the initial detonation activities as described in the USACE document.

While some of the inorganic detections' fall within the 95% UTL for facility wide background values, it is important that the RI identify those areas at UXO 11 where metals exceed background, and if any hot spots exist.

36. Section 9.1.2.2 – Chemical – Combined Surface and Subsurface Soil – The discussion of metals exceeding background values does not match those discussed in the surface soil discussion. Because this section adds the subsurface soil, but continues to include the surface soil, metals detected above background values should stay the same or increase. Here cobalt, iron, and vanadium are listed as not having exceeded background concentrations, but are listed as having exceeded background in surface soil.

37. Table K-2.7 – Screening toxicity value for copper is 8E+1, not 8E+2.

38. As noted in the draft RI, the exposure parameters in the document were not updated based on OSWER 9200.1-120 (2014). It is recognized that the updated exposure factors would not result in significant changes to the conclusions of the HHRA (as stated in Section 6.5.2); however, recommend updating the relevant exposure parameters for accuracy.

39. PEFs must be consistent across Table K-4s.

40. What is the significance of exposure time for an ingestion exposure? See Table K-4.3. Please clarify with footnote to table or remove.

41. Please provide the Table 7 for adolescent recreational receptor (which is currently not included in the document).

42. Please remove the duplicate Table K-7.6.RME.

43. Table K-7.8 – The carcinogenic risks for chromium in sediment for the future adolescent trespasser should be the same risks as those calculated for the current adolescent trespasser. Please rectify.

44. Table K-7.12 – The hazard quotient for the child resident exposed to chromium in air appears incorrect. The Agency calculated an HQ of 1.9E-3 for the child resident exposed to chromium in the air. While this does not change the conclusion of this pathway, it is a more accurate account of the estimated risks.

45. Table K-10.1 – 2,6-dinitrotoluene and arsenic should've been carried forward as COCs in groundwater for the future industrial worker because the cumulative cancer risk (2E-4) exceeds 1E-4 and the individual cancer risks for 2,6-dinitrotoluene (2E-6) and arsenic (1.5E-4) each exceed 1E-6.

If you have any questions, please feel free to call me at (215) 814-3357,

Sincerely,

Robert Thomson, P.E., REM
Office of Federal Facility Remediation (3HS11)

Cc: Curtis DeTore (MDE - Baltimore)
Travis Wray (NSWC-IH)